

Roof Module for a Motor Vehicle Body

Description:

5 The invention relates to a roof module for a motor vehicle body comprising a reinforcing frame and a roof panel that is fastened thereto, wherein said reinforcing frame can be fastened to the motor vehicle body by means of screw connections and adhesive bonds.

10 Roof modules for motor vehicle bodies are known in different versions. A prior art version (DE 198 53 820 A1) is introduced as a prefabricated component, which various accessories are mounted to, through the front window opening into the car body and placed from inside against the roof opening and fastened there. The completion of the car body interior is performed subsequently, with it being required to temporarily hang-out motor vehicle body side doors possibly installed already before.

15 In another version (DE 100 48 130 A1) the roof module features foldable edge strips that are transfolded to be able to introduce the roof module through a roof opening into the motor vehicle body. Subsequently the edge strips are unfolded again and the roof module is placed from inside against the motor vehicle body and fastened there. All this is too costly.

20 Now, therefore, it is the task of the present invention to provide a prefabricated and lacquered roof module equipped with all accessories that can be put onto the motor vehicle body during final assembly.

25 This task is solved by a roof module of the species described hereinabove in that the reinforcing frame or roof panel at its edge has a folded flange shaped to a U section, and that an edge strip of the roof panel or reinforcing frame engages into the U section and is bonded there to the reinforcing frame or roof panel, and that the roof module in a vertical projection is greater than a roof opening in the motor vehicle body. The roof panel and the reinforcing
30 frame may be comprised of pretreated and prelacquered metal sheets (coil coating) so that supplier needs no lacquer coating units. Furthermore, the roof module may be provided with all the desired accessories both inside and outside. The roof module is not put on in raw construction, i.e. before the motor vehicle body is lacquered, but only during final assembly onto an appropriately modified motor vehicle body. The relatively large roof opening, too,
35 facilitates thus the assembly of the interior outfit of the motor vehicle body and of the instrumentation panel, and the usual temporary disassembly of side doors, if any, may be dispensed with.

It is recommendable to seal an external joint between the folded flange and the roof panel.

Additional covering and cladding elements are not required, if the proposed procedure is observed.

5

The U section may have a support for the front window outside in the area of a front window. In this connection, the roof panel may be provided with a step in the area of the front window, whose height roughly corresponds to the thickness of the front window.

10 Furthermore, the U section may have a support in the door area for the side windows and/or a window pane seal co-acting with the side windows. In this connection, the roof panel in the door area may preferably have a step, whose height roughly corresponds to the thickness of the side window and/or window pane seal.

15 Some examples for the embodiments of the invention as shown on the relevant drawing are explained below, where:

Fig. 1 is a schematic view of a roof panel and of a reinforcing frame not yet connected to it;

20 Fig. 2 is a vertical section in the area of a front window of a roof module connected to a motor vehicle body;

Fig. 3 is an enlarged detail of the object according to Fig. 2;

25 Fig. 4 is a corresponding vertical section in the door area;

Fig. 5 is a corresponding vertical section in the area of a rear flap;

Fig. 6 is a corresponding vertical section in the door area with another embodiment.

30

A roof panel (1) and a reinforcing frame (2) belong to the depicted roof module (Fig. 1).

In Figures 2 to 6, equal reference symbols designate equal parts. The reinforcing frame (2) or the roof panel (1) have a circumferential edge strip (10) and/or (13), as well as a folded flange (11) connected thereto. The folded flange (11) is transfolded over the edge strip (10) and/or (13) and together they form a U section (12). An edge strip (10) and/or (13) of the roof panel (1) and/or reinforcing frame (2) engage into the U-section (12) which is bonded with

35

the edge strip (10) and/or (13) via a structural bonding. The external joint between folded flange (11) and edge strip (10) and/or (13) of roof panel (1) or reinforcing frame (2) is sealed with a sealing (6) to provide protection from corrosion. A shaped step (4) of roof panel (1) connects to edge strip (13), so that a support (14) connected to shaped step (4) is mainly flush to the transfolded folded flange (11).

The roof module is fastened in a usual manner with adhesive bonds (5) and screw connections (8) to the motor vehicle body (3).

Fig. 2 and Fig. 3 depict the roof module fastened to the motor vehicle body (3) in the area of the front window. Roof panel (1) and reinforcing frame (2) are supported against each other via an adhesive bond (9) at some distance from the edge area. In connection to support (14), roof panel (1) has a step (15), whose height roughly corresponds to the thickness of a non-depicted front window, so that roof panel (1) is mainly flush outside to a front window fastened at the edge side on support (14).

Fig. 4 shows a vertical section through the roof module in the door area, which is connected to the motor vehicle body (3). Here, too, the edge strip (13) of roof panel (1) passes via shaped step into a support (16), which is step (17) is connected to. Support (16) is provided for a non-depicted side door window and/or the pertaining window pane seal. Step (17) has a height that roughly corresponds to the thickness of the side door window pane and/or window pane seal.

Fig. 5 shows the configuration of roof panel (1) in the area of a non-depicted rear flap, with the step in the roof panel being dispensed with.

Fig. 6 shows a vertical section through the roof module in the door area connected to motor vehicle body (3). Here, the edge of roof panel (1) is folded over the edge strip of reinforcing frame (2).

By way of the measures described hereinabove, the connection of roof panel (1) to reinforcing frame (2) is made invisible and/or sealed in all areas.

The roof module can be put onto and fastened to the motor vehicle body (3) in the course of final assembly, after the interior outfit has been introduced through the existing large roof opening into an appropriately modified motor vehicle body and installed there.

List of References

	1	Roof panel
5	2	Reinforcing frame
	3	Motor vehicle body
	4	Shaped step at 1
10	5	Adhesive bonds between 2 and 3
	6	Sealing between 11 and 1
15	7	Structural bonding between 10 and 13
	8	Screw connections
	9	Adhesive bond between 1 and 2
20	10	Edge strip of 2
	11	Folded flange
25	12	U-shaped profile
	13	Edge strip of 1
	14	Support
30	15	Step
	16	Support
35	17	Step